

CLAIMS

1. Method of displaying an image using a spatial light modulator, comprising the steps of:
 - (1) Defining a number of groups of pixels on the spatial light modulator as sub-panels;
 - (2) Illuminating each said sub-panel with a light of a different property;
 - (3) Programming the content of pixels of the spatial light modulator to display a desired image.
2. Method of claim 1 wherein the step of illuminating comprising the steps of:
 - (1) Creating an illumination pattern;
 - (2) Projecting said illumination pattern onto the spatial light modulator.
3. Method of claim 2 wherein the step of projecting comprising the steps of:
 - (1) Projecting the illumination pattern along multiple paths;
 - (2) Illuminating each of said sub-panels by one of said multiple paths respectively.
4. Method of claim 3, wherein the step of illuminating each of the sub-panels comprising the step of applying color filtering optics to said multiple paths to illuminate each of said sub-panels with a different color.
5. Method of claim 3, further comprising the step of distributing the image of each said sub-panels in the time domain.
6. Method of claim 3, wherein the step of illuminating each of the sub-panels comprising the step of applying intensity changing optics to said multiple paths to illuminate each of said sub-panels with a different intensity.
7. Method of claim 2 wherein the illumination pattern projected onto the spatial light modulator illuminating adjacent pixels with scaled intensity difference.
8. Method of claim 2 wherein the step of creating an illumination pattern comprising the step of passing light to an array of micro-lens, or a shadow mask with reflective micro-pads, or an aperture plate.
9. Method of claim 1 wherein the property of light is color or gray scale.
10. Method of claim 1, further comprising the step of projecting images on the spatial light modulator onto an image plane at a distance.
11. Method of claim 10, further comprising the step of merging images from each of the sub-panels by overlapping the image frames projected from each of the sub-panels.

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12. Method of claim 1 wherein said sub-panels containing closely interlocked pixels.
13. Method of claim 1 wherein each of said sub-panels being isolated and separated from one another.
14. Method of claim 1, further comprising the steps of:
 - (1) Providing at least one additional spatial light modulator;
 - (2) Projecting and merging images from all spatial light modulators onto an image plane at a distance.
15. Method of claim 14, further comprising the step of distributing the image of each spatial light modulator in the time domain.
16. Method of displaying an image comprising the steps of
 - (1) Providing a display device containing a number of groups of pixels, with each group emitting a light of a different property;
 - (2) Merging images from each of the pixel groups by overlapping the image frames of each of the groups;
 - (3) Programming the content of pixels of the spatial light modulator to display a desired image.
17. Method of displaying a target image comprising the steps of
 - (1) Providing a spatial light modulator;
 - (2) Defining a composite pixel structure such that each composite pixel contains a number of sub-pixels;
 - (3) Defining a data coding relation between the state of the composite pixel and the states of its sub-pixels;
 - (4) Mapping said target image such that it comprises a format of the composite pixels;
 - (5) Converting the state of each said composite pixel into the states of its sub-pixels according to said data coding relation;
 - (6) Displaying the sub-pixels according to their states.
18. Method of claim 17, further comprising the step of attaching a pattern plate to the proximity of the surface of the spatial light modulator.

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